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Special Session on

# Ground robot competitions in dynamic, unstructured and large-scale real-world environments

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Applications in real environments demand many different capabilities of robotic systems: from autonomy, decision making and sensing to robustness, reliability and limitations on communication and power. Robotic contests like the European Land Robot Trial (ELROB) or the newly created European Robotics Hackathon (EnRicH) present challenges in which participants compete on real-world scenarios under realistic conditions and in real terrains, not specifically prepared neither known beforehand. Examples include autonomous navigation or mule missions in unstructured outdoor terrains, or accident response missions in industrial structures.

We encourage submissions that present system(s) deployed on the field in such robotic contests or similar realistic challenges. Papers can focus on any particular aspect of robotic systems, from vehicle design to the overall system architecture and control, via terrain mapping, localization, mission planning and execution. Our emphasis is on systems that fulfill a specific real-world task.

All the presented developments should be assessed by field results, obtained either in the scope of a robotic contest or in other contexts. However, field tests must be under realistic and challenging conditions with respect to the terrain type, the tasks to be fulfilled, and/or the conditions within which the scenarios must be achieved. Additional multimedia contents will also be considered: for example, datasets, videos or extensive images of the system during the challenge.

Session Chairs:

Dr. Frank E. Schneider (*1967) received his Ph.D. from the University of Bonn in 2011. Currently he is working at the Fraunhofer Institute for Communication, Information Processing and Ergonomics FKIE and is deputy head of the Cognitive Mobile Systems department. In 2004 he founded the European Robotics group and in 2005 the European Land Robot Trials (ELROB). Additionally, he is organizer of the European Robotics Hackathon (EnRicH).

Dennis Wildermuth (*1974) studied Computer Science at the Universities of Bonn and Hagen. Currently he is working in the Cognitive Mobile Systems department of the Fraunhofer FKIE. His research topics are communication and coordination in multi-robot systems, and robotic competitions and benchmarks. He is member of the organizing teams of the European Land Robot Trials (ELROB) and the European Robotics Hackathon (EnRicH).